CONTINUED PRESENCE OF *ANOPHELES ALBIMANUS* (DIPTERA: CULICIDAE) IN MONROE COUNTY, FLORIDA[1]

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ABSTRACT: The most recent collections of *An. albimanus* from Monroe County, Florida, are reported. The specimens were collected from Long Key and No Name Key, which are new locality records. The potential for larval breeding and malaria transmission is discussed.

Anopheles albimanus Wiedemann is the only member of the subgenus *Nyssorhynchus* that occurs in the United States (Faran 1980). Since its first collection in 1904 in Key West (Gardner 1904), *An. albimanus* has been reported infrequently from Florida. Although adults and larvae of *An. albimanus* were often collected in appreciable numbers during the 1940s, after 1950 its occurrence has been only sporadic, and the last collections reported from Florida were from Big Pine Key in 1957, when seven females were collected (Branch et al. 1958). The literature concerning this species' occurrence in Florida has been reviewed several times (Pritchard et al. 1946, Haeger 1949, Breeland 1982, Lounibos 1994). This note reports the most recent collections of *An. albimanus* from the Florida Keys, which are new locality records.

Light traps were baited with carbon dioxide (i.e., dry ice) and placed once per week on No Name Key from July through December 1998, and on Long Key from September to December 1998. Collections of *An. albimanus* were as follows: No Name Key – 12 Aug 1998 (1♀), 3 Sep 1998 (1♀), 23 Nov 1998 (1♀); Long Key - 17 Sep 1998 (5 ♀♀), 29 Sep 1998 (1♀). These are the first collections of this species from Long Key and No Name Key. Voucher specimens have been placed in the collections of the Florida Keys Mosquito Control District (FKMCD) and the Florida Medical Entomology Laboratory (FMEL).

Two questions on the biology of *An. albimanus* in the Florida Keys arise. No search for larvae was conducted during this study, so there may be doubt whether this species is breeding in the Keys or is an incidental introduction. Based on previous larval surveys it seems probable *An. albimanus* was established and breeding in the Florida Keys on several islands in fresh or brackish water with abundant emergent vegetation and greater than 50% sunlight (Haeger 1949, 1950). The specimens collected on No Name Key during this study were collected over a period of four months. Most probably these collections were due to reproduction of a small population on the

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island. It is possible, though unlikely, that there could have been repeated introductions of small numbers of females during that time. Development since the 1950s undoubtedly has reduced the amount of larval habitat available and this likely accounts for the small numbers collected.

Another question that remains is whether *An. albimanus* has been present continuously since 1957, the last reported collection, or did it disappear from the Keys and become reestablished later. There has been little mosquito surveillance in the Florida Keys for many years, and no voucher specimens were kept, so this question is impossible to answer. However, whenever systematic mosquito collections have been made, sooner or later *An. albimanus* has been detected. It is likely that this species has been present but undetected during the years since 1957.

Anopheles albimanus is an important malaria vector in Mexico, Central America, the Caribbean, and northern South America (Faran 1980). The popularity of the Florida Keys as a tourist destination means there is constant movement of people into and out of the area, including people who may have visited malarious areas prior to visiting the Keys. One confirmed case of imported malaria was reported from Key West in 1998 (Anonymous 1998). Additionally, south Florida, including the Florida Keys, is a favored arrival point for illegal immigrants from Cuba, Haiti, and Jamaica (Viglucci 1998). The possibility exists that one or more of these people may arrive with circulating gametocytes. In either case, there is a possibility that local *Anopheles* spp. can be infected and then transmit malaria to other people, as was documented in the panhandle region of Florida in 1990 and in Palm Beach County in 1996 (Florida Coordinating Council on Mosquito Control 1998).

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BOOKS RECEIVED AND BRIEFLY NOTED

MITES. ECOLOGY, EVOLUTION AND BEHAVIOUR. 1999. D.E. Walter and H.C. Proctor. University of New South Wales Press. 322 pp. in 6-3/4" x 11" format, with 60 color plates. $95.00 hard.

A comprehensive natural history of mites in which the authors highlight the roles that mites have played in the development of important theoretical concepts in ecology and evolution (e.g. local mate competition, prey refugia, multi-level selection and tritrophic level interactions) and emphasize that, in many cases, the lives of mites clearly demonstrate that many currently accepted theories are flawed.

A REVISION OF THE GENUS *THEOPE*. ITS SYSTEMATICS AND BIOLOGY (LEPIDOPTERA: RIODINIDAE: NYMPHIDIINI). 1999. J.P.W. Hall. Scientific Publishers, Inc. 127 pp. in 8-1/2" x 11" format, with 68 species illustrated in full color on ten plates. $32.50 paper.

A comprehensive treatment of the complex Neotropical metalmark butterfly genus *Theope* is presented, including keys to species and notes on biologies. Two new species and two new subspecies are described; 15 lectotypes are designated. Also included are descriptions of all species, distribution maps, and illustrations of genital characters.